

## By 2050, electricity generation from wind power plants could exceed 15 TWh per year, which is more than twice the current electricity consumption

Given that nearly 792 MW of onshore wind power capacity is already reserved (planning or construction stage), the electricity generated from onshore wind power plants (WPP) in the coming years could increase by 2.4 TWh/year.

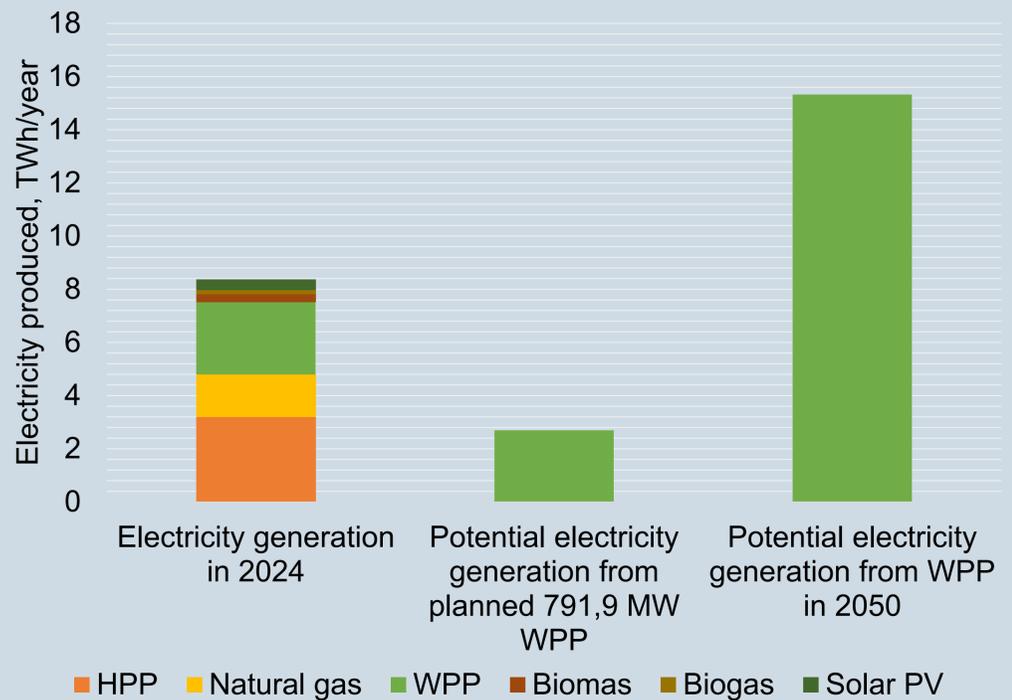


Fig.1. Comparison of electricity generated in 2024 with the potential future electricity generation from WPP

### Introduction

Latvia's electricity generation is currently dominated by hydropower, but wind energy holds significant untapped potential. Onshore WPP capacity is expected to grow significantly—from 133 MW today to 4.5 GW by 2050.

Wind-generated electricity is intermittent, as its availability fluctuates with meteorological conditions. Therefore, careful analysis of available resources and consumption data is essential.

### Methodology

The potential electricity volume from onshore wind power plants calculated using available data on average wind speeds in Latvia. Calculations were performed for each calendar month to evaluate the variable impact of wind on electricity generation throughout the year.

As part of the study, additional calculations were carried out for different hub heights (185 – 300 m) and rotor diameters.

### Results

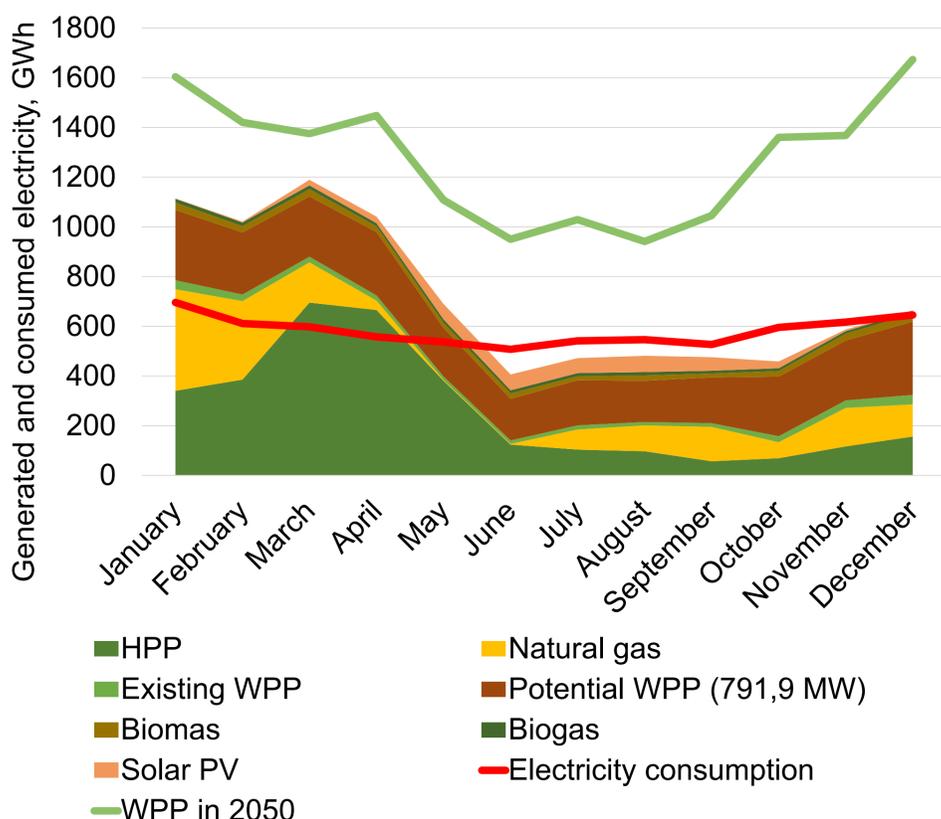


Fig.2. The generated electricity volume by source and consumed electricity (including actual data for 2024 and calculated data for potential electricity from WPP (791,9 MW), as well as the WPP forecast for 2050).

Already in the spring months, the available electricity supply exceeds demand. As electricity generation from wind power plants increases, this gap is expected to grow further, highlighting the need to find effective solutions for balancing future electricity supply and demand that can be grouped into three main categories.

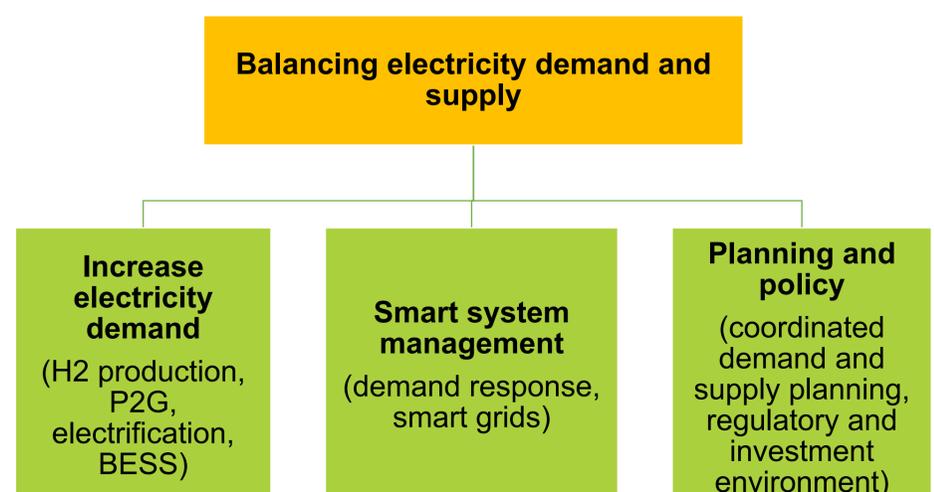


Fig.3. Solutions for promoting the more efficient use of WPP surplus electricity.